AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

Please add the following on page 1, after line 2:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of Great Britain Patent Application No. 0400342.2 filed January 8, 2004; and PCT Application No. PCT/GB2005/000037 filed January 7, 2005, which are herein incorporated by reference in their entirety.

Please amend the following paragraph on page 9, beginning at line 2:

Figure 2 schematically shows in perspective view a piezoelectric positioner 16 for positioning an object, such as an optical lens, in two dimensions. In the orientation shown in Figure 2, the positioner 16 is arranged to move an object in a horizontal xy- plane. The piezoelectric positioner comprises a fixed part 20, a moveable part 22 and three releasable clamp mechanisms 28A-C. The positioner is driven by a controller 18 through a signal pathway schematically shown as an arrow 19. In this example, the controller is an appropriately configured general purpose computer. In other examples, an application specific controller may be preferred, such as a field programmable gate array (FPGA) or an application specific integrated chip (ASIC). The fixed part 20 acts as a base which may be attached to an optical table. The moveable part 22 comprises a piezoelectric device in the form of a piezoelectric disc 24 to which a carrier in the form of a mounting post 26 is centrally attached. The piezoelectric disc 24 is arranged such that it may be driven by the controller 18 to expand and contract radially in an xy-plane. The expanding or contracting of a piezoelectric element is often referred to exercising the piezoelectric element. Although not used in this example, in other examples the piezoelectric disc may be pre-stressed, for example by mounting a metal ring about its

circumference such that its relaxed in-use size is smaller than its natural size when fully unconstrained. The mounting post 26 serves to provide an upper mounting face for an object to be positioned. The mounting post 26 may comprise a one-axis positioner arranged to provide positioning along an axis perpendicular to the xy-plane. In some cases the mounting post may be dispensed with and the object placed directly onto the piezoelectric disc 24. The three releasable clamp mechanisms 28A-C are disposed at the vertices of an equilateral triangle and configured to provide selective clamping of the piezoelectric disc 24 at first (A), second (B) and third (C) locations under the control of the controller 18. The releasable clamp mechanisms 28A-C are arranged such that when clamped at any of A, B and or C, the part of the piezoelectric disc 24 which is being clamped is prevented from moving in the xy- plane relative to the fixed part.

Please amend the following paragraph on page 10, beginning at line 1:

Figure 3 schematically shows in vertical section the piezoelectric positioner 16 shown in Figure 2. The section view of Figure 3 is taken in a folded-plane which passes through the releasable clamp mechanism 28A to the centre of the piezoelectric disc 24 and then through the releasable clamp mechanism This folded section is chosen so as to more readily show how the piezoelectric disc 24 is supported. In this example, the releasable clamp mechanisms 28A, 28C are identical to one another and only releasable clamp mechanism 28A is described in detail. The releasable clamp mechanism 28A comprises a rigid support 30A, a gantry 34A and a piezoelectric clamping element 32A. The rigid support 30A and the gantry 34A are attached to the fixed part 20. The piezoelectric disc 24 rests on the rigid support and on the corresponding rigid supports associated with each of the other releasable clamp mechanisms. The piezoelectric clamping element 32A is attached to the gantry 34A such it is held over the piezoelectric disc 24A in alignment with the rigid support 30A. The piezoelectric clamping element 32A is

arranged such that it may be driven by the controller 18 to expand and contract in a direction perpendicular to the piezoelectric disc 24. In its relaxed state (i. non-exercised) the piezoelectric clamping element contacts the piezoelectric disc and so provides a clamping force at location A. When the piezoelectric clamping element 32A is driven by the controller 18 to contract, the clamping force at A is released. To prevent possible damage to the piezoelectric clamping element or the piezoelectric disc, the releasable clamp mechanism 28A may include a degree of resilience, for example, by employing a resilient fixing between the piezoelectric clamping element 32A and the gantry 34A. Although in the positioner shown in Figure 2 the piezoelectric clamping element 32A directly contacts the piezoelectric disc 24, in other examples an intermediate element which is fixed to the piezoelectric clamping element may be employed. Such an intermediate element may be shaped to provide a reduced contact area with the disc and may be formed from a material which provides increased friction between the releasable clamp mechanism and the disc.

Please amend the following paragraph beginning on page 15, at line 23:

Figure 8 schematically shows in perspective view a piezoelectric positioner 56 according to a third embodiment of the invention. The piezoelectric positioner comprises a fixed part 60, a moveable part 62 and four releasable clamp mechanisms 63A-D. The positioner is driven by a controller through a signal pathway schematically shown as an arrow 59. The fixed part 60 forms a base which may be attached to an optical table, for example. The moveable part 62 comprises a piezoelectric device in the form of four passive corner pieces 64A-D which are connected by four piezoelectric positioning elements 66A-D. A mounting post 68 is attached to one of the corner pieces 64C. The piezoelectric positioning elements 66A- D are arranged such that each may be independently driven by the controller 18 to expand and contract along its length so as to

increase or decrease the separation of the corner pieces to which it is attached. The piezoelectric positioning elements 66A-D may be driven individually or together. A first pair of releasable clamp mechanisms 66B, 66D are arranged parallel to the x-axis and a second pair 66A, 66C are arranged parallel to the y-axis. The mounting post 68 serves to provide an upper mounting face on which an object to be positioned may be placed. The four releasable clamp mechanisms 63A-D are disposed at the corners of a square and configured to provide selective clamping of the corner pieces 64A-D at corresponding first (A), second (B), third (C) and fourth (D) locations under the control of the controller 58. Each of the releasable clamp mechanisms 63A-D of Figure 8 is similar to and will be understood from the releasable clamp mechanisms of the first embodiment of the invention. Clamping mechanisms similar to those of the second embodiment may also be used.

Please amend the following paragraph on page 19, beginning at line 4:

Figure 12 schematically shows in vertical section the piezoelectric positioner 116 shown in Figure 11. The section view of Figure 12 is taken in a folded-plane which passes through the releasable clamp mechanism 128A to the centre of the moveable part 122 and then through the releasable clamp mechanism The releasable clamp mechanisms 128A, 128B, 128C are identical to one another and only releasable clamp mechanism 128A is described here. The releasable clamp mechanism 128A comprises a gantry 134A, a piezoelectric clamping element 132A, a rigid support 150A and a piezoelectric support element 152A. The rigid support 150A and the gantry 134A are attached to the fixed part 120. The moveable part 122 rests on the piezoelectric support element 152A which in turn is mounted on the rigid support 150A. The piezoelectric clamping element 132A is attached to the gantry 34A such that it is held over the upper piezoelectric ring 124 of the moveable part 122 in vertical alignment with the piezoelectric

support element 152A. The piezoelectric clamping element 132A and the piezoelectric support element are arranged such that they may be independently driven by the controller to expand and contract parallel to the z- axis. In its relaxed state the piezoelectric clamping element 132A contacts the upper piezoelectric ring 124 of the moveable part 122 and so provides a clamping force at location A. When the piezoelectric clamping element 132A is driven by the controller to contract, the clamping force at A is released.

Please amend the following paragraph beginning on page 21, at line 19:

Step Sl of Figure 14 corresponds to an initial state of the positioner 116. The piezoelectric clamping elements 132A-C and the piezoelectric spacer elements 146A- C are all relaxed. The upper and lower piezoelectric mounting post elements 140,142 are slightly expanded so as to provide a friction-grip fit within the respective openings in the piezoelectric rings 124,126, as described above. In step S2, the upper piezoelectric mounting post element 140 is contracted such that the mounting post 127 formed of the upper and lower piezoelectric mounting post elements is supported only by the lower piezoelectric ring 126. In step S3, the piezoelectric clamping elements 132A-C are all contracted by an amount AZ while at the same time the piezoelectric spacer elements 146A-C are expanded by the same amount. This has the effect of maintaining a vertical clamping force which prevents motion of the moveable part 122 in the xy-plane but raises the upper piezoelectric ring 124 relative to the fixed part 120 by an amount In step S4, the upper piezoelectric mounting post element is returned to its slightly expanded state such that it is again friction gripped by the upper piezoelectric ring. In step S5, the lower piezoelectric mounting post element 142 is contracted such that the mounting post 127 is now supported only by the upper piezoelectric ring 124. In step S6, the piezoelectric clamping elements 132A-C and the piezoelectric spacer elements 146A-C are returned to their relaxed

states. This has the effect of lowering the upper piezoelectric ring 124 relative to the fixed part 120 by an amount while maintaining a vertical clamping force on the moveable part 122. Because the mounting post 127 is supported by the upper piezoelectric ring and free to move within the opening in the lower piezoelectric ring, the mounting post 127 is also lowered by an amount AZ during this operation. In step S7, the lower piezoelectric mounting post element 142 is returned to its slightly expanded state such that it is again gripped by the lower piezoelectric ring. This is the end of the sequence. The mounting post 127 has been moved downwards by an amount AZ while the other components are returned to their initial positions. Multiple sequences and sequences of different amplitude (i. e. different AZ) can be executed to provide a larger range of movements. It will be appreciated that many other sequences may be executed, for example to achieve an upward motion. Sequences may also be employed which include contraction and/or expansion of the piezoelectric support elements in combination to provide an increased range of motion per sequence execution.